POTENSI EKSTRAK KELAKAI *(Stenochlaena palustris (Burm.f) Bedd)* TERHADAP KADAR TNF-α dan IL-10 PADA MENCIT Balb/C YANG DIINFEKSI *Plasmodium berghei* ANKA

Abstrak

Malaria masih menjadi masalah kesehatan utama di dunia. Sitokin pro-inflamasi seperti TNF-α meningkat pada malaria berat. Sitokin anti-inflamasi, seperti IL-10 memiliki peran untuk melindungi terjadinya kerusakan. Keseimbangan antara produksi sitokin pro dan anti-inflamasi mempengaruhi sistem pertahanan tubuh sebagai sesuatu yang penting untuk resolusi berbagai kondisi patologis. Di Kalimantan Selatan, tanaman kelakai digunakan untuk mengobati demam dan penyakit infeksi. Kelakai mengandung senyawa-senyawa bioaktif antara lain flavonoid, steroid, dan alkaloid yang dilaporkan memiliki banyak efek biologis, termasuk aktivitas anti-inflamasi. Tujuan penelitian ini adalah untuk mengetahui potensi ekstrak kelakai terhadap kadar TNF-α pada mencit BALB/s yang diinfeksi *P. berghei* ANKA. Penelitian ini merupakan studi eksperimental murni dengan *Posttest-only with Control Group Design*. Kelompok perlakuan dibagi menjadi 8 kelompok. Dua kelompok mendapat ekstrak kelakai per oral 10 mg/kg BB dan 100 mg/kg BB. Empat kelompok mendapat ekstrak kelakai per oral 10 mg/kg BB dan 100 mg/kg BB 3 jam setelah infeksi dan pada saat parasitemia mencapai 15-20%. Kontrol negatif tidak mendapat ekstrak kelakai dan infeksi parasit. Kontrol positif mendapat infeksi parasit. Perlakuan diberikan selama 4 hari. Sampel darah diambil 24 jam setelah perlakuan terakhir. Kadar TNF-α dan IL-10 diukur dengan ELISA metode sandwich. Data dianalisa dengan tes Games Howell, dengan tingkat kepercayaan 95%. Terdapat perbedaan bermakna antar kelompok perlakuan, nilai p = 0,000 (p<0,05). Ekstrak kelakai berpotensi menghambat produksi TNF-α pada kelompok Pb + EK10 5 hari (p = 0,005).

Kata-kata Kunci : *Stenochlaena palustris (Burm.f) Bedd, Plasmodium berghei* ANKA, TNF-α, IL-10

THE POTENTIAL OF KELAKAI (*Stenochlaena palustris (Burm.f) Bedd)* EXTRACT AGAINTS TUMOR NECROCIS FACTOR-ALFA (TNF-α) AND INTERLEUKIN-10 (IL-10) IN BALB/c MICE INFECTED WITH *Plasmodium berghei* ANKA

Abstract

Malaria remains a major public health problem in the world. Pro-inflammatory cytokines such as TNF-α is raised in severe malaria. Anti-inflammatory cytokines, such as IL-10 have been proposed to have protective role. An appropriate balance of pro- and anti-inflammatory cytokines influences in the immune response is critical for resolutions of many pathological conditions. In South Kalimantan, the kelakai *(Stenochlaena palustris (Burm.f) Bedd)* has few uses for treat fever and infectious diseases. It contains bioactive substances, such as flavonoids, steroids, and alkaloids which have been reported to exert multiple biological effects, including anti-inflammatory action. The aim of this study is to find out the potential of kelakai extract (KE) againts TNF-α and IL-10 level in BALB/c mice infected *P. berghei* ANKA. The research is true experimental study, Posttest-only with Control Group Design. Teatment groups were devided into 8 groups. Two groups were treated with 10 mg/kg BW and 100 mg/kg BW of KE orally. Four groups were treated with 10 mg/kg BW and 100 mg/kg BW of KE orally three hours after infection and when parasitemia reached 15-20%. Negative control group without KE treatment and *P. berghei* infection. Positive control group only with *P. berghei* infection. Treatment were given for four days. Blood was collected 24 hours after the last treatment. Plasma TNF-α and IL-10 level were measured by sandwich ELISA. Data was analyzed by using Games Howell Test, with confidence rate at 95%. There was a significant different between treatment groups, where $p = 0{,}000$ ($p < 0{,}05$). KE potential to inhibit TNF-α production in Pb + EK10 5 days group ($p = 0{,}005$).

Key words : *Stenochlaena palustris (Burm.f) Bedd, Plasmodium berghei* ANKA, TNF-α, IL-10